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PROBLEMS OF ROTATION IN GROUND-NUT GROWING IN SENEGAL : SEED DISINFECTION AND DENSITY OF SOWING

By A. BOCKELEE-MORVAN,
Sector Head of the I.R.H.O., Senegal,
P. GILLIER,
Head of the I.R.H.O., Ground-Nut Service

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No. 1544

PROBLEMS OF ROTATION IN GROUND-NUT GROWING IN SENEGAL - SEED DISINFECTION AND DENSITY OF SOWING

By

C.4.3.

A.BOCKELEE-MORVAN, SECTOR HEAD OF THE I.R.H.O., SENEGAL
and
P.GILLIER, HEAD OF THE I.R.H.O. GROUND-NUT SERVICE

SUMMARY

Part I

The long-term experiments carried out in Senegal for the purpose of studying the questions of rotation and of maintenance of fertility described in this report examine the influence of land lying fallow during various periods, and its treatment following a three year cultural cycle of ground-nuts/millet, or sorghum/millet.

It was demonstrated that according to the climatic areas concerned a return to the initial fertility potential of the soils in question (cultivated after having lain fallow for long periods) was dependent on the ground lying naturally fallow for varying periods:

2 years in the south (area with 800 mm. of water per annum)
3 years (minimum) in the centre (area of 500/600 mm.)
4 years and over in the north (450 mm. area).

The system of burning off prior to cultivation proved the best treatment for this naturally fallow land.

Mineral fertilisers applied sparingly to land under ground-nut and sorghum cultivation produced considerably increased yields, and after several cultivation cycles enabled the production of stablised yields of approx. 2 (metric) tons per hectare.

The use of mineral fertiliser enabled the humus, carbon and nitrogen contents to be raised.

Part II

The initial studies have shown that the disinfection of the ground-nut seeds has had a considerable effect on the crop, and also a secondary effect on the vigour of the plants.

The optimum sowing density was studied by applying the Marchal method to a number of varieties. In the case of early varieties, the increase in yield is marked up to 250,000 plants per hectare. In the case of the late varieties, the optimum density was found to be 125,000 plants per hectare for the 28.206 variety (semi-erect), and 100,000 plants per hectare for the 31.33 variety (climbing).

The density/yield relationship was studied in conjunction with the disinfection of the seed and the application of fertilisers.

In the case of the late varieties, a density of 110,000 seeds per hectare should generally be used. Fertilisers have the maximum effect where density is greatest.

These results have been confirmed by large-scale cultivation on more than 500 plots of one third of a hectare each.

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